UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,417	07/18/2003	Sachin Navin Chheda	200308578-1	4994

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EXAMINER
DU, THUAN N

ART UNIT	PAPER NUMBER
2116	

NOTIFICATION DATE	DELIVERY MODE
09/10/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/623,417	CHHEDA ET AL.
	Examiner	Art Unit	
	Thuan N. Du	2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2008*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-17 and 19-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-17 and 19-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *1/28/08*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

1.   It is hereby acknowledged that the following papers have been received and

placed of record in the file: Amendment (dated 6/23/2008).

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

3.   Claims 1-3, 5-15 and 22-23 are rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the written description requirement. The claim(s) contains subject

matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application

was filed, had possession of the claimed invention. The specification does not disclose

any embodiment which the local monitoring circuitry is configured to monitor *both* power

consumption *and* temperature at the CPU, transmit *both* power consumption value *and*

temperature value to the CPMM.

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

5.   Claims 1-3, 5-17 and 19-23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Fung, U.S. Pub. No. 2002/0004912 in view of Brock et al. [Brock],

U.S. Patent No. 6,836,849.

6.   As per claim 1, Fung discloses a system for power management of a rack of

computers, the system comprising: server side infrastructure (SSI) circuitry (server

module 402) at each computer in the rack, the SSI circuitry including local monitoring

circuitry (activity indicator generator 406) coupled to a central processing unit (CPU)

(404) of the computer (as argued in previous Office Action; paragraph 104, lines 4-15

and paragraph 107, lines 24-35); and, a centralized power management module

(CPMM) (management module 430) with an out-of-band (OOB) management link to the

SSI circuitry at each computer in the rack (as argued in previous Office Action;

paragraphs 40-41 and paragraphs 84, 85, 90, 151-152 and paragraph 107, lines 21-32),

wherein the CPMM (430) is configured to monitor power (via SM control unit and

algorithm 432) being consumed by the CPUs by sending a polling message to the SSI

circuitry at each computer in the rack (Fung discloses the SM control unit and algorithm

432 "retrieving" activity indicators which necessitates requesting and/or polling;

paragraph 104, lines 4-15 and paragraph 107), wherein the local monitoring circuitry

(406) within the SSI circuitry (402) at each computer in the rack is configured to monitor

power consumption and temperature at the CPU (the temperature at the CPU is

measured by temperature sensor integrated in each CPU; paragraphs 77-81) and

respond to the polling message from the CPMM by transmitting an activity indicator or

power consumption value to the CPMM (Fung discloses activity indicators being

retrieved from the local monitoring circuitry 406 and transmitted to SM control unit and

algorithm 432 to be used for adjusting power management modes which is inclusive of

power throttling; paragraphs 104, 105 and 107), and wherein the CPMM is further

configured to apply a set of rules (as argued in previous Office Action) to the power

consumption from the local monitoring circuitry to determine when and at which

computers to enable and disable a CPU power throttling mode (paragraphs 107-108,

190-247), and applying thermoelectric cooling (cooling fans could be individually

controlled in response to the measured temperature; paragraphs 77-81).

Although Fung discloses using measured temperatures (via sensors 204) within

local monitoring circuitry and using said measured temperature to manage power by

throttling (paragraph 122 and paragraph 310, lines 200-207 on page 43, column 1),

Fung fails explicitly teach *the management module being configured to receive*

temperature values from the local monitoring circuitry.

Brock teaches a server rack system comprising a controller (201) that receives

measured temperatures (207) from processors (103-106) and uses said measured

temperatures to manage power via clock control (column 4, lines 30-55 and column 6,

lines 39-62). Brock has the additional benefit of managing power and temperature both

locally and globally within the system (column 4, lines 1-29).

It would have been obvious to one of ordinary skill of the art having the teachings

of Fung and Brock at the time the invention was made, to modify apparatus of Fung to

include the management module receiving temperatures from local monitoring circuitry

as taught by Brock. One of ordinary skill in the art would be motivated to make this

combination to include the management module receiving temperatures from local monitoring circuitry in view of the teachings of Brock, as doing so would give the added benefit of managing power and temperature both locally and globally within the system (as taught by Brock above).

7.   As per claim 2, Fung teaches the system wherein the rack of computers (server modules 54) comprises multiple servers mounted in the rack (paragraph 40).

8.   As per claim 3, Fung teaches the system wherein the rack of computers comprise a plurality of blade servers (server modules 54) in a blade chassis (as shown in figure 2; paragraph 40).

9.   As per claim 5, Fung teaches the system further comprising: a console (138) coupled to the CPMM (management module 430) for user interaction (paragraphs 50, 100 and 189).

10.   As per claim 6, Fung teaches the system wherein the console comprises a console (138) connected locally (via bus 140 or 142) to the CPMM (paragraphs 50 and 100).

11.   As per claim 7, Fung teaches the system wherein the console comprises a remote console (136) coupled via a network (through the internet 132 via connection 134) to the CPMM (paragraph 126).

12.   As per claim 8, Fung teaches the system wherein the system is configured to enable a user to setup the aforementioned rules by way of the console (paragraphs 50, 100 and 189).

13.   As per claim 9, Fung teaches the system wherein the system is configured to

enable a user to view power consumption data by way of the console (paragraphs 50,

100 and 189).

14.   As per claim 10, Fung teaches the system further comprising: additional CPMMs

(one or more management modules 53 in figure 2) with management links (Link as

shown in figure 12) to SSI circuitry (server modules 54) at additional racks of computers

(Fung further discloses additional groups of computers referred to as server system

units 52; paragraph 40); and a power management system coupled to the plurality of

CPMMs (paragraphs 42 and 104-107).

15.   As per claim 11, Fung teaches the system wherein the power management

system is configured to enable a user to view power consumption data and to customize

the sets of rules applied by the CPMMs (paragraphs 50, 100 and 189).

16.   As per claim 12, Fung disclose a server-side apparatus for a rack-mounted

computer, the apparatus comprising: local monitoring circuitry (activity indicator

generator 406) coupled to a central processing unit (CPU) (404) of the computer (server

module 402) and coupled to a centralized power management system (SM control unit

and algorithm 432 within management module 430) which is configured to manage

power and temperature for a rack of computers (as argued in previous Office Action;

paragraphs 40-41, paragraphs 104 and 107 and paragraphs 77-81), wherein the local

circuitry (406) is configured to monitor power consumption and temperature at the CPU

(as argued in previous Office Action) (Fung discloses the temperature at the CPU is

measured by temperature sensor integrated in each CPU and transmitted to a

management module; paragraphs 77-81), transmit power consumption to the

centralized power management system (432), receive out-of-band polling messages

from the centralized power management system, respond to the polling messages by

transmitting an activity indicator or power consumption value to the centralized power

management system, and send commands to enable and disable a power throttling

mode at the CPU (Fung discloses the SM control unit and algorithm 432 -"retrieving"

activity indicators which necessitates requesting and/or polling; paragraph 104, lines 4-

15 and paragraph 107) (Fung further discloses activity indicators being retrieved from

the local monitoring circuitry 406 and transmitted to SM control unit and algorithm 432 to

be used for adjusting power management modes which is inclusive of power throttling;

paragraphs 104, 105, 107-108 and 190-247), and to apply thermoelectric cooling at the

CPU (cooling fans could be individually controlled in response to the measured

temperature; paragraphs 77-81).

Although Fung discloses using measured temperatures (via sensors 204) within

local monitoring circuitry and using said measured temperature to manage power by

throttling (paragraph 122 and paragraph 310, lines 200-207 on page 43, column 1),

Fung fails explicitly teach *the management module being configured to receive*

temperature values from the local monitoring circuitry.

Brock teaches a server rack system comprising a controller (201) that receives

measured temperatures (207) from processors (103-106) and uses said measured

temperatures to manage power via clock control (column 4, lines 30-55 and column 6,

lines 39-62). Brock has the additional benefit of managing power and temperature both locally and globally within the system (column 4, lines 1-29).

It would have been obvious to one of ordinary skill of the art having the teachings of Fung and Brock at the time the invention was made, to modify apparatus of Fung to include the management module receiving temperatures from local monitoring circuitry as taught by Brock. One of ordinary skill in the art would be motivated to make this combination to include the management module receiving temperatures from local monitoring circuitry in view of the teachings of Brock, as doing so would give the added benefit of managing power and temperature both locally and globally within the system (as taught by Brock above).

17.   As per claim 13, Fung teaches the apparatus further comprising: a power measurement link (Link as shown in figure 12) between the local monitoring circuitry (activity indicator generator 406) and the CPU (CPU of management module 430 via server module control algorithm and unit 432) for monitoring power consumption at the CPU (paragraph 107, 24-35).

18.   As per claim 14, Fung teaches the apparatus further comprising: an interrupt line (Link as shown in figure 12) between the local monitoring circuitry (activity indicator generator 406) and the CPU (CPU of management module 430) for transmitting interrupt messages that enable and disable the power throttling mode at the CPU (paragraph 107).

19.   As per claim 15, Fung teaches the apparatus further comprising: a special register (frequency control register 205) writable by the local monitoring circuitry (activity

monitor of CPU 201) and readable by the CPU to enable and disable the power

throttling mode at the CPU (paragraph 122).

20.   As per claim 16, Fung discloses a central power management apparatus for a

rack of computers, the apparatus comprising: a management module (430) coupled via

an out-of-band link to local monitoring circuitry (SM control unit and algorithm 432) at

each computer (402) in the rack (as argued in previous Office Action; paragraphs 40-41

and 104), wherein the management module (430) is configured to transmit polling

messages to the local monitoring circuitry (406), receive an activity indicator or power

consumption value from the local monitoring circuitry (406) in response to the polling

messages, determine at which computers to enable and disable a CPU power throttling

mode, and transmit messages to said determined computers to enable and disable the

CPU power throttling mode (Fung discloses the SM control unit and algorithm 432

"retrieving" activity indicators which necessitates requesting and/or polling; paragraph

104, lines 4-15 and paragraph 107) (Fung further discloses activity indicators being

retrieved from the local monitoring circuitry 406 and transmitted to SM control unit and

algorithm 432 to be used for adjusting power management modes which is inclusive of

power throttling; paragraphs 104, 105, 107-108 and 190-247) and at which computers

to apply thermoelectric cooling (paragraphs 77-81).

Although Fung discloses using measured temperatures (via sensors 204) within

local monitoring circuitry and using said measured temperature to manage power by

throttling (paragraph 122 and paragraph 310, lines 200-207 on page 43, column 1),

Fung fails explicitly teach *the management module being configured to receive temperature values from the local monitoring circuitry*.

Brock teaches a server rack system comprising a controller (201) that receives measured temperatures (207) from processors (103-106) and uses said measured temperatures to manage power via clock control (column 4, lines 30-55 and column 6, lines 39-62). Brock has the additional benefit of managing power and temperature both locally and globally within the system (column 4, lines 1-29).

It would have been obvious to one of ordinary skill of the art having the teachings of Fung and Brock at the time the invention was made, to modify apparatus of Fung to include the management module receiving temperatures from local monitoring circuitry as taught by Brock. One of ordinary skill in the art would be motivated to make this combination to include the management module receiving temperatures from local monitoring circuitry in view of the teachings of Brock, as doing so would give the added benefit of managing power and temperature both locally and globally within the system (as taught by Brock above).

21.   As per claims 17 and 19-23, they do not teach or further define over the limitations recited in the rejected claims above. Therefore, claims 17 and 19-23 are also rejected as being unpatentable over Fung in view of Brock for the same reasons set forth in the rejected claims above.

Response to Arguments

22.   In response to applicant's argument that Fung does not teach thermoelectric cooling is applied based on a set of rules, examiner respectfully disagrees as Fung discloses that applying cooling fan to the CPU when high temperature is detected. It is seen that thermoelectric cooling as claimed is met by cooling fan taught by Fung.

Conclusion

23.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

24.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan Du whose telephone number is (571) 272-3673. The examiner can normally be reached on Monday-Friday: 7:30 AM - 4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Rehana Perveen can be reached at (571) 272-3676.

Central TC telephone number is (571) 272-2100.

The fax number for the organization is (571) 273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll free).

TD
September 5, 2008

/Thuan N. Du/
Primary Examiner, Art Unit 2116